

1 AMENDMENTS TO THE CLAIMS

1-34 (Canceled).

1 35. (Currently Amended) A method of characterizing a large ~~group~~ plurality of biological cells,
2 comprising:

3 a) separating the cells so that the cells of the large ~~group~~ plurality are preponderantly separated
4 from each other;

5 b) characterizing each cell according to an aspect of the vibrational spectrum of each cell,
6 wherein the vibrational spectrum of each cell is analyzed for indications that the cell is
7 in a cell division stage, and;

8 c) statistically analyzing the characteristics of the cells.

9

10 36. (Currently Amended) The method of claim 35, wherein the results of the statistical analysis
11 is the percentage of the cells of the ~~group~~ large plurality which are in a cell division
12 stage.

1 37. (Previously presented) The method of claim 36, wherein the indication that a cell is in a cell
2 division stage is the presence of a signal indicating DNA in the vibrational spectrum .

1 38. (Original) The method of claim 37, wherein the separated cells are located according to the
2 fluorescence of the cells.

1 39. (previously presented) The method of claim 35, wherein the vibrational spectrum of each
2 cell is the recording of an infrared absorption spectrum for each cell.

3 40 . (Currently Amended) The method of claim 39, wherein the results of the statistical analysis
4 is the percentage of the cells of the ~~group~~ large plurality which are in a cell division stage.

1 41. (previously presented) The method of claim 40, wherein the indication that a cell is in a cell
2 division stage is the presence of a signal indicating DNA in the infrared absorption spectra.

1 42. (previously presented) The method of claim 41, wherein the separated cells are located
2 according to the fluorescence of the cells.

1 43. (previously presented) The method of claim 35, wherein the vibrational spectrum of each
2 cell is the recording of a Raman spectrum for each cell.

3 44 . (Currently Amended) The method of claim 43, wherein the results of the statistical analysis
4 is the percentage of the cells of the ~~group~~ large plurality which are in a cell division stage.

1 45. (previously presented) The method of claim 44, wherein the indication that a cell is in a cell
2 division stage is the presence of a signal indicating DNA in the infrared absorption spectra.

1 46. (previously presented) The method of claim 45, wherein the separated cells are located
2 according to the fluorescence of the cells.

1 47. (currently amended) A method, comprising:

2 locating a ~~very large number~~ large plurality of separated cells with a location means;

3 illuminating the cells with light;

4 recording light emitted from the cells; and

5 characterizing the vibrational spectrum of the light emitted from each cell located by the location

6 means, wherein the vibrational spectrum is analyzed for indications that the cell is in a

7 cell division stage.

1 48. (currently amended) The method of claim 47, wherein the ~~vibrational spectrum~~

2 ~~characterization means comprises a means for generating and for transmitting infrared~~

3 ~~light through each cell~~ is illuminated with infrared light.

1 49. (currently amended) The method of claim 48, wherein the ~~means for generating infrared~~

2 ~~light comprises~~ each cell is illuminated using a first laser having a first defined infrared

3 wavelength.

1 50. (previously presented) The method of claim 49, wherein the first laser is pulsed when the

2 location means locates a first cell in a position to be characterized by the first laser.

1 51. (previously presented) The method of claim 49, wherein the first defined wavelength

2 comprises a wavelength wherein DNA is highly absorbing.

1 52. (previously presented) The method of claim 51, wherein a second laser having a second

2 infrared wavelength is pulsed to characterize the cell, wherein the second infrared

3 wavelength comprises a wavelength wherein RNA is highly absorbing.

- 1 53. (currently amended) The method of claim 48, wherein ~~the means for generating infrared~~
2 ~~light comprises~~ each cell is illuminated with infrared light from a third laser having a
3 broad band infrared wavelength range.
- 4 54. (previously presented) The method of claim 53, wherein the third laser is pulsed when the
5 location means locates a first cell in a position to be characterized by the laser.
- 1 55. (previously presented) The method of claim 54, wherein the broad band infrared
2 wavelength range includes a wavelength wherein DNA is highly absorbing.
- 1 56. (previously presented) The method of claim 55, wherein the broad band infrared
2 wavelength range includes a wavelength wherein RNA is highly absorbing.
- 1 57. (previously presented) The method of claim 56, wherein the infrared absorption spectrum
2 of each cell is recorded.
- 1 58 (previously presented) The method of claim 57, wherein the infrared absorption spectrum
2 of each cell is analyzed for indications that the cell is in a cell division stage.
- 1 59. (previously presented) The method of claim 58, wherein the percentage of the cells in the
2 cell division stage is calculated.
- 1 60. (previously presented) The method of claim 59, wherein the indication that a cell is in a
2 cell division stage is the presence of a signal indicating DNA in the infrared absorption
3 spectra.
- 1 61. (previously presented) The method of claim 47, wherein the location means is a
2 fluorescence activated sorting method

- 1 62. (currently amended) The method of claim 47, wherein the vibrational spectrum is
2 characterized by ~~characterization means comprises a means for illuminating the cells,~~
3 ~~and a means for analyzing the Raman scattered light emitted from the cells.~~
- 1 63. (currently amended) The method of claim 62, wherein ~~the means for illuminating the cells~~
2 ~~comprises~~ cells are illuminated by a first laser having a first defined wavelength.
- 1 64. (previously presented) The method of claim 63, wherein the first laser is pulsed when the
2 location means locates a first cell in a position to be illuminated by the first laser.
- 1 65. (previously presented) The method of claim 64, wherein the Raman spectrum of each cell
2 is recorded.
- 1 66. (previously presented) The method of claim 65, wherein the Raman spectrum of each cell
2 is analyzed for indications that the cell is in a cell division stage.
- 1 67. (previously presented) The method of claim 66, wherein the indication that a cell is in a
2 cell division stage is the presence of a signal indicating DNA in the Raman spectra.